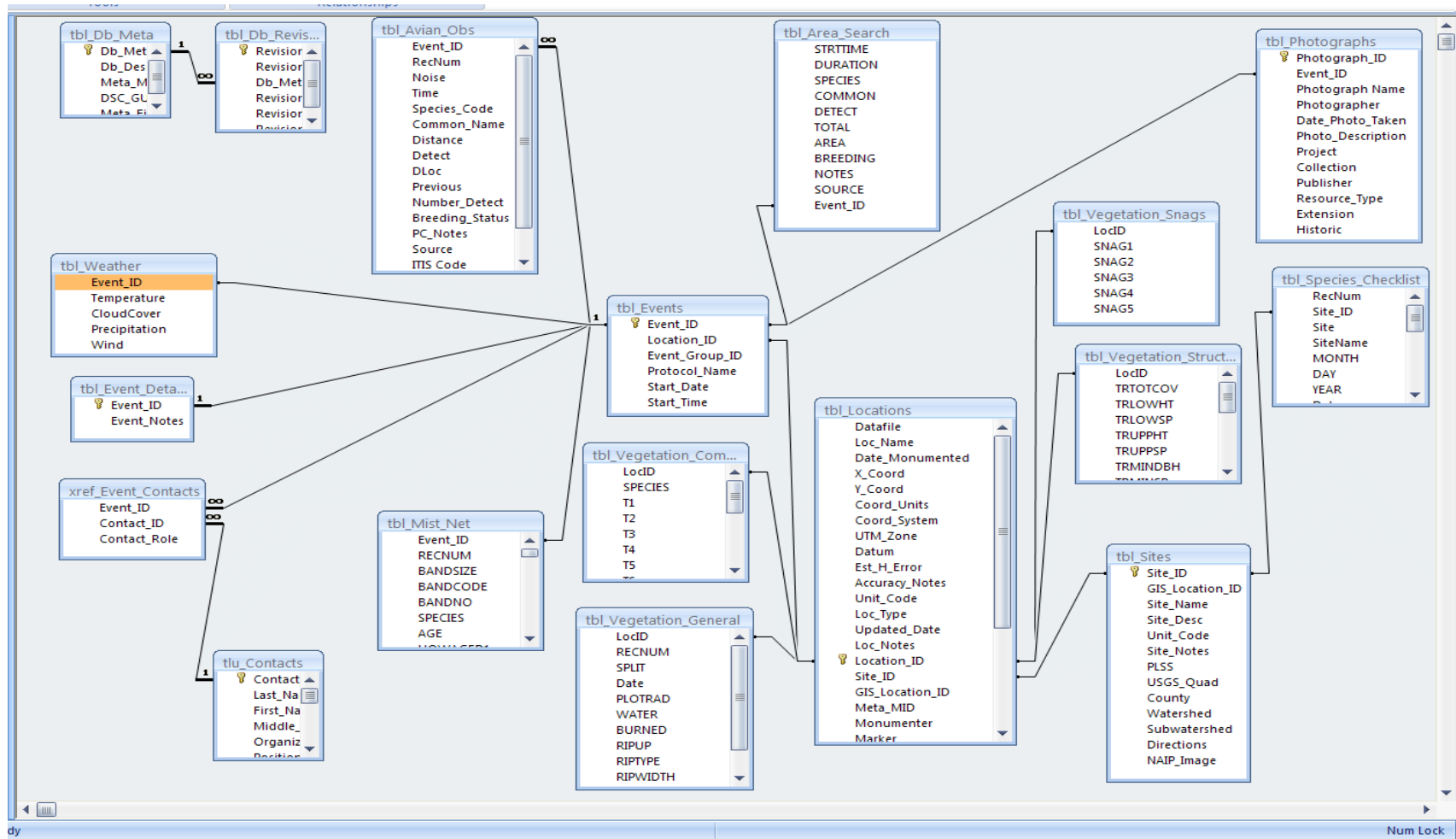


## Appendix H. Klamath Network Landbird Monitoring Database Structure.

The Klamath Network Landbird database was designed following the Natural Resource Database Template. This appendix provides the relationship diagram for the back-end of the database and the data dictionary for each table in the database. Fields that have a pick list associated with them are shown in the relationship diagram. However, the relationship between the field(s) and the table containing the pick list values are not shown.



## Appendix H. Klamath Network Landbird Monitoring Database Structure.

### Data Dictionary For the KLMN Landbird Database

#### tbl\_Sites

This table stores the data directly related to the route or CES

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Site_ID	Y	Text	50						Unique ID value that relates to the sites table
GIS_Location_ID	Y	Text	50						Unique ID value that relates to the GIS Record
Site_Name	Y	Text	100						Name of the route, EMS
Site_Desc	Y	Text	255						General description of the site
Unit_Code	Y	Text	4		CRLA, LABE, LAVO, ORCA, REDW, WHIS				Park where the site occurs
Site_Notes	Y	Memo	255						General notes
PLSS	Y	Text	50						Public Land Survey System location for the sites
USGS_Quad	Y	Text	50		all USGS quads in the Network				USGS map where the site occurs
County	Y	Text	50		all counties in the network				County where the site occurs
Watershed	Y	Text	50		all watersheds in the network				Watershed where the site occurs
Subwatershed	Y	Text	50		all subwatersheds in the network				Subwatershed where the site occurs
Directions	Y	Text							General directions to the start of the route
Naip_Image	Y	Ole Object							NAIP image of the route.

#### tbl\_Locations

This table stores the data related to the listening stations along each route and the mist net locations

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Source	Y	Text	6						Name of the KBO file where this data came from
Loc_Name	Y	Text	6		See monumented sites				Name of the point, area search, or mist net
Date_Monumented	Y	Date/Time							Date the site was monumented
X_Coord	Y	Number	6						Easting coordinate for the site
Y_Coord	Y	Number	7						Northing coordinate for the site
Coord_Units	Y	Text	2		m, ft				Unit of measure
Coord_System	Y	Text	3		Geo, UTM				Unit of measure
UTM_Zone	Y	Text	3		10				Zone

Datum	Y	Text	5	Nad83, WGS84	Datum
Est_H_Error	N	Number	3		Estimated error
Accuracy_Notes	N	Memo			General notes about the accuracy of the site
Unit_Code	Y	Text	4	CRLA, LABE, LAVO, ORCA, REDW, WHIS	Park code
Loc_Type	Y	Text	25	Area Search, Mist Net, Point Count Station	Type of location
Updated_Date	N	Date/Time			Date a record was updated
Loc_Notes	N	Memo			General notes about the location
Location_ID	Y	Text	50		Unique ID value that relates to other tables
Site_ID	Y	Text	50		Unique ID value that relates to the sites table
GIS_Location_ID	Y	Text	50		Unique ID value that relates to the GIS Record
Meta_MID	N	Text	50		Unique ID value that relates to the metadata
Monumenter	Y	Text	255		Person who monumented the site
Marker	Y	Text	50		Type of marker used to monument the site
Marker_Substrate	Y	Text	100		Substrate that the monumenting marker was attached too
Marker_Height	Y	Number	3		Height the marker was attached
Offset_Dist	Y	Number	3		Distance the marker is from the true survey point
Offset_Bearing	Y	Number	3		Bearing the marker is from the true survey point
Elevation	Y	Number	3		Elevation of the site
Aspect	Y	Number	3	0 359	Aspect at the site
Slope	Y	Number	3	0 90	Slope at the site
Directions	Y	Memo			General directions to the site
Sort_Order	Y	<b>Number</b>	2	1 12	Order the site is surveyed in along the route
Marker_Notes	Y	Memo			General notes about the marker

## tbl\_Events

This table stores the data related to the date and time a survey was started

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Event_ID	Y	Text	50						Unique ID that relates this record to the event
Location_ID	Y	Text	50						Unique ID that relates this record to the location
Event_Group_ID	N	Text	50						Unique ID that relates this record to the location Group
Protocol_Name	Y	Text	100		Draft Landbird Monitoring Protocol v1.0				Name of the protocol used to implement this field work

Start_Date	Y	Date/Time	Date the field work was started
Start_Time	N	Date/Time	Time the field work was started

## tbl\_Area\_Search

This table stores the data related to the Area Searches at the Constant Effort Monitoring Station.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Strttime	Y	Text	4		00:01 - 24:00	0:01	24:00		Time the survey started
Duration	Y	Number	3	0				Minutes	Length of the survey
Species	Y	Text	4		AOU Bird Codes				Four letter code for the species observed during the survey
Common	Y	Text	255		AOU Bird List				Common name of the species observed during the survey
Detect	Y	Text	2		S = Song, C = Call, V = Visual, W = Wing, D = Drumming, F = Fly Over, -9 = No Data				Type of detection
Total	Y	Number	2	0		0			Total number of the particular species detected
Area	Y	Text	2		On = bird was observed on or near the search area, Off = bird was observed outside the search area, -8, -9 = No Data				Used to determine if the bird is on or off the area
Breeding	Y	Text	2		N = current year's Nest found with eggs or young, in the process of being built, or already depredated or abandoned; M = adult seen gathering or carrying nesting Material to a likely nest site in the study area; F = adult seen carrying Food or Fecal sac to or from a likely nest site in the study area; D = Distraction display or injury feigning by an adult bird; L = a young bird incapable of sustained flight (a "Local") in the study area or very young (stub-tailed) fledglings being fed by parents in the study area; C = Copulation or Courtship observed of a species within its breeding range; T = other Territorial behavior observed; S = territorial Song or drumming heard; B = Bird Captured, E = Encountered in study area, O = Encountered flying over study area				Breeding status of the bird
Notes	N	Text	255						Notes about the survey
Source	Y	Text	6						Name of the KBO file where this data came from
Event_ID	Y	Text	50						Unique ID used to relate this record to the event record.

## tbl\_Avian\_Obs

This table stores the data related to the surveys using the VCP Point Count methods.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Event_ID	Y	Text	50						Unique ID used to relate this record to the event record.
RecNum	Y	Integer	3	0	NA	NA	NA	NA	Unique number assigned by KBO to represent this record
Noise	Y	Integer	1	0	1 = none, 2 = moderate, 3 = too much noise, cannot hear birds >15 m away from point	NA	NA	NA	Noise level at the area
Time	Y	Date/Time	4	NA	NA	0:01	24:00:00	Military	Time the species was observed
Species_Code	Y	Text	4	NA	North American Bird Banding Manual	NA	NA	NA	4 character species code of observed species
Common_Name	Y	Text	255	NA	North American Bird Banding Manual	NA	NA	NA	Common name of the observed species
Distance	N	Integer	3	0	NA	NA	NA	meters	Distance to the species
Detect	N	Text	1	NA	S = Song, C = Call, V = Visual, W = Wing (e.g., Mourning Dove or hummingbird wing whir), D = Drumming, F = Fly over.	NA	NA	NA	
Dloc	N	Text	1	NA	R = Riparian, Blank = Non-Riparian	NA	NA	NA	
Previous	N	Text	1	NA	P = Previous, Blank = Not Previous	NA	NA	NA	Determines if the species was detected at a previous site
Number_Detect	N	Integer	3	0	NA	NA	NA	NA	Total number of detections
PC_Notes	N	Memo							General notes about the point count survey
Source	Y	Text	6						Name of the KBO file where this data came from
Data_ID									Unique ID field used for this record.

Breeding_Status	N	Text	1	NA	N = current year's Nest found with eggs or young, in the process of being built, or already depredated or abandoned; M = adult seen gathering or carrying nesting Material to a likely nest site in the study area; F = adult seen carrying Food or Fecal sac to or from a likely nest site in the study area; D = Distraction display or injury feigning by an adult bird; L = a young bird incapable of sustained flight (a "Local") in the study area or very young (stub-tailed) fledglings being fed by parents in the study area; C = Copulation or Courtship observed of a species within its breeding range; T = other Territorial behavior observed; S = territorial Song or drumming heard; B = Bird Captured, E = Encountered in study area, O = Encountered flying over study area	NA	NA	NA	Breeding status
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## tbl\_Mist\_Net

This table stores the data related to the surveys using the Mist Netting methods.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Event_ID	Y	Text	50						Unique ID that relates this record to the event
RecNum	Y	Integer	3	0	NA	NA	NA	NA	Unique number assigned by KBO to represent this record
BandSize	Y	Text	2	NA	Pyle (1997) and the Tabular Pyle	NA	NA	NA	2 digit code for the size of the band
BandCode	Y	Text	2	NA	N = New Band, D = Destroyed, R = Repeat, L = Band Lost, U = Unbanded, C = Band Changed	NA	NA	NA	KBO/RSL Band Code
BandNo	Y	Integer	9	0				NA	Number of the band placed on the bird
Species	Y	Text	4	NA				NA	4 digit AOU species code
Age	Y	Text	2	NA	A = After Hatch Year, H = Hatch Year, L = Local, O = After Second Year, S = Second Year, T = Third Year, U = Undetermined, V = After Third Year, X = Not Attempted, -9 =	NA	NA	NA	Age of the bird
HowAged1	Y	Text	2	NA				NA	First method used to age the bird
HowAged2	Y	Text	2	NA				NA	Second method used to age the bird

Sex	Y	Text	2	NA	M = Male, F = Female, U = Undetermined, X = Not Attempted	NA	NA	NA	Sex of the bird
HowSex1	Y	Text	2	NA	B = Brood Patch, C = Cloacal Protuberance, @ = Egg in Oviduct, E = Eye Color, I = Mouth/Bill Color or Striation on Bill, G = Gape, F = Feet or Legs, S = Skull Ossification, Q = Measurements, Y = Symmetrical Flight Feather Molt, A = Adult Definitive Plumage, H = First Winter Plumage, J = Juvenal Plumage, P = Plumage, L = Plumage Color Patch Length or Extent, D = Primary Covert Shape or Wear, W = Differential Feather Wear, V = Feather Shape, T = Feather Texture, R = Pre Juvenal Molt, "=" = Fault Bar Alignment, # = Growth Bar Alignment, O = Other, U = Undetermined After Examination, X = Age or Sex Determination not attempted, Z - Less Precise Age, M = Age by Molt Limits	NA	NA	NA	First method used to sex the bird
HowSex2	Y	Text	2	NA	B = Brood Patch, C = Cloacal Protuberance, @ = Egg in Oviduct, E = Eye Color, I = Mouth/Bill Color or Striation on Bill, G = Gape, F = Feet or Legs, S = Skull Ossification, Q = Measurements, Y = Symmetrical Flight Feather Molt, A = Adult Definitive Plumage, H = First Winter Plumage, J = Juvenal Plumage, P = Plumage, L = Plumage Color Patch Length or Extent, D = Primary Covert Shape or Wear, W = Differential Feather Wear, V = Feather Shape, T = Feather Texture, R = Pre Juvenal Molt, "=" = Fault Bar Alignment, # = Growth Bar Alignment, O = Other, U = Undetermined After Examination, X = Age or Sex Determination not attempted, Z - Less Precise Age, M = Age by Molt Limits	NA	NA	NA	Second method used to sex the bird
Skull	Y	Text	2	NA	SY, ASY, ATY = After 3rd Year				Degree of skull ossification
CP	Y	Text	2	NA				??	Cloacal Protuberance
BP	Y	Text	2	NA				??	Brood Patch
Fat	Y	Text	2	NA				??	Fat
BodyMolt	Y	Text	2	NA				NA	Body Molt
FFMolt	Y	Text	2	NA				NA	Flight feather molt
FFWear	Y	Text	2	NA				NA	Flight feather wear
JuvPlum	Y	Text	2	NA				NA	Juvenal plumage
MoltLim1	Y	Text	2	NA				NA	First molt limit
MoltLim2	Y	Text	2	NA				NA	Second molt limit
Wing	Y	Integer	2	0	NA	NA	NA	NA	Wing cord

Weight	Y	Integer	4	1	NA	NA	NA	??	Weight
Status	Y	Text	2	NA	N = Normal, C = Color Band, I = Injured, D = Dead			NA	Bird status
Month	Y	Integer	2	0				NA	Month the bird was captured
Day	Y	Integer	2	0				NA	Day the bird was captured
Year	Y	Integer	4	0				NA	Year the bird was captured
Date	Y								
CapTime	Y	Integer	3	0				NA	3 digit time the bird was captured
Site	Y	Text	4	NA				NA	Banding location
Point	Y	Integer	2	0				NA	Net number
NoteNum	Y	Integer	2	0				NA	Note number
OldBand	N	Integer	9	0				NA	Old band number that was replaced
UpColor	N	Text	2	NA				NA	Upper part color
UnColor	N	Text	2	NA				NA	Under part color
ThrColor	N	Text	2	NA				NA	Throat color
ChnColor	N	Text	2	NA				NA	Chin color
LgColor1	N	Text	2	NA				NA	Leg color
LgColor2	N	Text	2	NA				NA	Leg color
RngShp1	N	Text	2	NA				NA	Eye ring shape
RngShp2	N	Text	2	NA				NA	Eye ring shape
RngCol1	N	Text	2	NA				NA	Eye ring color
RngCol2	N	Text	2	NA				NA	Eye ring color
MandBase	N	Text	2	NA				NA	Color at the base of the mandible
MandTip	N	Text	2	NA				NA	Color at the tip of the mandible
Culmen	N	Integer	4	1				CM	Length of culmen from nares
BillWidth	N	Integer	4	1				CM	Width of the bill
LppLss	N	Text	4	NA				NA	Longest primary, longest secondary
Lpp6	N	Text	4	NA				NA	Longest Primary - p6
P6P10	N	Text	2	NA				NA	p6-p10
P9P5	N	Text	2	NA				NA	p9-p5
P10P5	N	Text	2	NA				NA	p10-p5
P10P4	N	Text	2	NA			>, <, =	NA	p10-p4
P6EMarg	N	Text	2	NA			Y, N	NA	p6 emarginated
Tail	N	Integer	2	0				CM	Tail length
WingTail	N	Integer	2	0				CM	Wing-tail
R6R1	N	Text	2	NA				NA	R6-61
WebRect	N	Text	2	NA			N, S, M	NA	Outer web of rectrices



Clipped	N	Text	3	NA			NA	Clipped rectrice feather. Left / Right and number	
BillGrv	N	Integer	3	0		0	100	%	Bill length with grooves
R2EMarg1	N	Text		NA				NA	R2 emarginated: in
R2EMarg2	N	Text		NA				NA	R2 emarginated: out
R5Width	N	Integer	4	0				NA	R5 width
Notes	N	Memo		NA				NA	General Notes

## tbl\_Species\_Checklist

This table stores the data related to the surveys using the Species Checklist methods.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
RecNum	Y	Integer	3	0	NA	NA	NA	NA	Unique number assigned by KBO to represent this record
Site_ID	Y	Text	50						Unique ID value that relates to the sites table
Site	Y	Text	4						Name of the Route, Mist Net Location, or Area Search Zone
SiteName	N	Text	100						Name sometimes used by KBO
Month	Y	Number				1	12		Month the bird was observed
Day	Y	Number				1	31		Day the bird was observed
Year	Y	Number							Year the bird was observed
Date	Y	Date/Time							Date the bird was observed
PrimObs	Y	Text	255						Primary Observer for the day
SecObs	N	Text	255						Secondary Observer for the day
NumObs	Y	Number							Total number of observers
Survey_Type	Y	Text	3		B, PC, CES, O				Type of survey
Start_Time	Y	Date/Time							Time the survey started
End_Time	Y	Date/Time							Time the survey ended
Species	Y	Text	4		AOU Bird Codes				Four letter code for the species observed during the survey
Common	Y	Text	255		AOU Bird List				Common name of the species observed during the survey
Notes	N								General Notes about the day
Source	Y	Text	6						Name of the KBO file where this data came from
Data_ID	Y								Field data table row identifier
Data_Location_ID	N								Optional link to tbl_Data_Locations
Project	Y								Project name used by KBO

Breeding	Y	Text	2	<p>N = current year's Nest found with eggs or young, in the process of being built, or already depredated or abandoned; M = adult seen gathering or carrying nesting Material to a likely nest site in the study area; F = adult seen carrying Food or Fecal sac to or from a likely nest site in the study area; D = Distraction display or injury feigning by an adult bird; L = a young bird incapable of sustained flight (a "Local") in the study area or very young (stub-tailed) fledglings being fed by parents in the study area; C = Copulation or Courtship observed of a species within its breeding range; T = other Territorial behavior observed; S = territorial Song or drumming heard; B = Bird Captured, E = Encountered in study area, O = Encountered flying over study area</p>	Breeding status of the bird
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## tbl\_Photos

This table stores the metadata for each image taken as part of this project.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Event_ID	Y	Text	50						Unique ID that relates this record to the event
Photograph_ID	Y	Text	50						Unique ID for this record
Photograph_Name	Y	Text	50						Name of the image
Photographer	Y	Text	50						Person who took the photograph
Date_Photo_Taken	Y	Date/Time							Date the photograph was taken
Photo_Description	Y	Memo							Detailed description of the photograph
Project	Y	Text	40		"Landbird Monitoring Project"				Name of the project
Collection	Y	Text	4		KLMN				Collection this photo is part of.
Publisher	Y	Text	3		NPS				Who is the publisher of this photo
Resource_Type	Y	Text	5		Image				Type of product
Extension	Y	Text	4		.jpg, .bpm				Extension of the photo
Historic	Y	Yes/No							Was this image taken before 2003

## tbl\_Vegetation\_Composition

This table stores the data related to the composition parameters of the vegetation data

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Location_ID	Y	Text	50	0					Unique ID value that relates to other tables
Species	Y	Text	4	0					4 letter code for the species
T1	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
T2	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
T3	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
T4	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
T5	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
T6	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S1	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S2	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S3	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S4	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S5	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
S6	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
H1	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
H2	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
M1	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss
M2	Y	Text	2	0	0, 1, 2, 3, 4, 5, +, -, R				Sublayer where T = Tree, S = Shrub, H = Herb, M = Moss

## tbl\_Vegetation\_General

This table stores the data related to the general parameters of the vegetation data

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Location_ID	Y	Text	50						Unique ID value that relates to other tables
RecNum	Y	Integer	3	0	NA	NA	NA	NA	Unique number assigned by KBO to represent this record
Split	N	Text	1	NA	Y, N	NA	NA	NA	
Date		date/Time							
PlotRad	Y	Integer	3	0		NA	NA	meters	Radius of the vegetation plot
Water	Y	Text	2	NA	"+"= water is present in the plot,"-" = water is	NA	NA	NA	Determines the presence of water on the site

					not present in the plot				
Burned	Y	Text	2	NA	B = Recently burned vegetation (e.g., scorched shrubs, trees with brown leaves still on branches, etc.) with greater than 10% cover within the plot. U = Plot is unburned or with less than 10% burned vegetation	NA	NA	NA	Determines if the site has been recently burned.
RipUp	N	Text	2	NA	R = Riparian plant species comprise a minimum of 5% of the plot radius. U = Plot radius is not composed of at least 5% riparian plant species	NA	NA	NA	Determines if the site contains riparian or upland vegetation
RipType	N	Text	2	NA	F = Flowing water (e.g., river, stream, or creek), P = Pond, W = Wetland, L = Lake, -9, -8	NA	NA	NA	Type of riparian area
RipWidth	N	Text	3	NA	1 = less than 0.5 hectares, 2 = between 0.5 and 4 ha, 3 = >4 ha.	NA	NA	NA	The size of the entire riparian area (includes contiguous riparian outside the plot)
SiteNotes	N	Memo	NA	NA	NA	NA	NA	NA	General notes about the site
VegNotes	N	Memo	NA	NA	NA	NA	NA	NA	General notes about the vegetation

## tbl\_Vegetation\_Snags

This table stores the data related to the snag parameters of the vegetation data

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Location_ID	Y	Text	50						Unique ID value that relates to other tables
Snag1	Y	Integer	3	0	NA	NA	NA	NA	Number of snags in XXX size class
Snag2	Y	Integer	3	0	NA	NA	NA	NA	Number of snags in XXX size class
Snag3	Y	Integer	3	0	NA	NA	NA	NA	Number of snags in XXX size class
Snag4	Y	Integer	3	0	NA	NA	NA	NA	Number of snags in XXX size class
Snag5	Y	Integer	3	0	NA	NA	NA	NA	Number of snags in XXX size class

## tbl\_Vegetation\_Structure

This table stores the data related to the structure parameters of the vegetation data

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Location_ID	Y	Text	50						Unique ID value that relates to other tables
TrTotCov	Y	Integer	3	0	5 = >75, 4 = 51-75, 3 = 26-50, 2 = 5-25, 1 = numerous, but less than 5% or scattered with cover up to 5%, + = few with small cover, r = rare, solitary, with small cover	NA	NA	%	Total cover in the tree layer

TrLowHt	Y	Integer	3	1	NA	0	NA	meters	Lower tree height
TrLowSP	Y	Text	4	NA	NA	NA	NA	NA	Species used for lower tree heght
TrUppHt	Y	Integer	3	1	NA	0	NA	meters	Upper tree height
TrUppSp	Y	Text	4	NA	NA	NA	NA	NA	Species used for upper tree height
TrMinDBH	Y	Integer	3	0	NA	NA	NA	centimet er	Diameter at breast height for the smallest tree layer
TrMinSp	Y	Text	4	NA	NA	NA	NA	NA	Species used for smallest DBH
TRMaxDBH	Y	Integer	3	0	NA	NA	NA	centimet er	Diameter at breast height for the largest tree layer
TrMaxSp	Y	Text	4	NA	NA	NA	NA	NA	Species used for Largest DBH
TrNumSub	Y	Integer	3	0	NA	NA	NA	NA	Number of tree sublayers
ShTotCov	Y	Integer	3	0	5 = >75, 4 = 51-75. 3 =26-50, 2 = 5-25, 1 = numerous, but less than 5% or scattered with cover up to 5%, + = few with small cover, r = rare, solitary, with small cover	NA	NA	NA	Total Cover in the shrub layer
ShLowHt	Y	Integer	3	1	NA	0	NA	meters	Lower shrub height
ShLowSP	Y	Text	4	NA	NA	NA	NA	NA	Species used for lower shrub height
ShUppHt	Y	Integer	3	1	NA	0	NA	meters	Upper shrub height
ShUppSp	Y	Text	4	NA	NA	NA	NA	NA	Species used for upper shrub height
ShNumSu	Y	Integer	3	0	NA	NA	NA	NA	Number of shrub sublayers
HbTotCov	Y	Integer	3	0	5 = >75, 4 = 51-75. 3 =26-50, 2 = 5-25, 1 = numerous, but less than 5% or scattered with cover up to 5%, + = few with small cover, r = rare, solitary, with small cover	NA	NA	NA	Total cover in the herb layer
MsTotCov	Y	Integer	3	0	5 = >75, 4 = 51-75. 3 =26-50, 2 = 5-25, 1 = numerous, but less than 5% or scattered with cover up to 5%, + = few with small cover, r = rare, solitary, with small cover	NA	NA	NA	Total cover in the moss layer

## tbl\_Vegetation\_Structure

This table stores the data related to the structure parameters of the vegetation data

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Event_ID	Y	Text	50						Unique ID that relates this record to the event
Temperature	Y	Integer	3	0	NA	NA	NA	Celcius	Temperature
CloudCover	Y	Integer	3	0	NA	0	100	%	Cloud cover

Precipitation	Y	Text	2	NA	N, F, M, D, R	NA	NA	Precipitation during the survey
Wind	Y	Integer	2	0	0 = calm, smoke rises vertically and the sea is mirror smooth. 1 = light air, smokes moves slightly with breeze and shows direction of wind. 2 = you can feel wind on your face and hear the leaves start to rustle. 3 = gentle breeze, small branches start to sway, wind extends a light flag. 4 = moderate breeze, loose dust or sand on the ground will move and larger branches will sway. >4 = Do not survey, too much wind. -9 = No Data	NA	NA	Wind speed using Beaufort code

## tlu\_Avian\_Species\_list

This table is a lookup list of landbirds and can be used to link to ITIS

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Name	Y	Text	255	NA		NA	NA	NA	Common name of the species
ABBR	Y	Text	4	NA		NA	NA	NA	4 letter code for the species
Bad_Codes	N	Text	4	NA		NA	NA	NA	bad codes for the species
PyleCode	N	Text	4	NA		NA	NA	NA	
Scientific	N	Text	255	NA		NA	NA	NA	Scientific name of the species
Kingdom	N	Text	8	NA		NA	NA	NA	Taxonomic classification for the species
Phylum	N	Text	8	NA		NA	NA	NA	Taxonomic classification for the species
Class	N	Text	4	NA		NA	NA	NA	Taxonomic classification for the species
Order	N	Text	50	NA		NA	NA	NA	Taxonomic classification for the species
Family	N	Text	50	NA		NA	NA	NA	Taxonomic classification for the species
Genus	N	Text	50	NA		NA	NA	NA	Taxonomic classification for the species
Species	N	Text	50	NA		NA	NA	NA	Taxonomic classification for the species
Subspecies	N	Text	50	NA		NA	NA	NA	Taxonomic classification for the species
PC	Y	Text	5	NA	True / False	NA	NA	NA	
SendAKN	Y	Text	5	NA	True / False	NA	NA	NA	Record sent to Avian Knowledge Network
At_Sea	Y	Text	5	NA	True / False	NA	NA	NA	Species found at the Sea
Costa_Rica	Y	Text	5	NA	True / False	NA	NA	NA	Species found in Costa Rica
Non_Bird	Y	Text	5	NA	True / False	NA	NA	NA	
Banding	Y	Text	5	NA	True / False	NA	NA	NA	Species is banded by KBO
Species_Num	Y	Integer	10	5	NA	NA	NA	NA	

Sci_Code	N	Text	20	NA		NA	NA	NA	
PyleTax	N	Integer	15	5		NA	NA	NA	
BandSize	N	Text	20	NA		NA	NA	NA	Size of the band used on these species
Sci_Code_U	N	Text	20	NA		NA	NA	NA	
Notes	N	Memo	NA	NA	NA	NA	NA	NA	General notes about the species

## tlu\_Contacts

This table is a lookup list that stores the contact information for each person working on the project.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Contact_ID	Y	Text	50						Unique ID for this record
Last_Name	Y	Text	50						Last name of the person
First_Name	Y	Text	50						First name of the person
Middle_Init	Y	Text	4						Middle initial of the person
Organization	Y	Text	50						Organization the person works for
Position_Title	Y	Text	50						Position title of the person
Address_Type	Y	Text	50						Address for the person
Address_Type	Y	Text	50						Address for the person
Address2	Y	Text	50						Address for the person
City	Y	Text	50						Address for the person
State_Code	Y	Text	8						Address for the person
Zip_Code	Y	Text	50						Address for the person
Country	Y	Text	50						Address for the person
Email_Address	Y	Text	50						Address for the person
Work_Phone	Y	Text	50						Phone number for the person
Work_Extension	Y	Text	50						Phone number for the person
Contact_Notes	N	Memo							General notes about the person
Initials	Y	Text	3						Initials of the person

## tlu\_Enumeration

This table is a lookup list that stores lookup values for all of the fields not associated with the species or contact lookup tables.

Field Name	Required	Field Type	Field Size	Decimal	Enumerated Domain	Min Value	Max Value	Unit of Measure	Field Description
Enum_Code	Y	Text	50						Code for lookup value
Enum_Description	Y	Memo	50						Lookup value description
Enum_Group	Y	Text	50						Category for lookup value
Sort_Order	Y	Number							Sort order for lookup values